Corporate Presentation

August 2022

Forward Looking Statements

This presentation and various remarks we make during this presentation contain forward-looking statements of Astria Therapeutics, Inc. (“Astria,” the “Company,” “we”, “our” or “us”) within the meaning of applicable securities laws and regulations, including statements with respect to: the Company’s projected cash runway; expectations regarding the design of the Phase 1a trial for STAR-0215 and the nature and timing of the preliminary results from such trial; the planned timing of initiation of a Phase 1b/2 clinical trial of STAR-0215; the potential attributes and differentiated profile of STAR-0215 as a treatment for HAE, including those suggested by preclinical and pharmacokinetic modeling data; the potential commercial opportunity for STAR-0215 in HAE, including its potential to be a best-in-class and most patient friendly treatment option for HAE; the need for effective treatments for HAE; the planned biomarker assay for STAR-0215; the size and anticipated growth of the HAE market; the Company’s patent application directed at STAR-0215; and the Company’s goal to meet the unmet needs of patients with rare and niche allergic and immunological diseases, and expand its pipeline. We use words such as "aims," “anticipate,” “believe,” “estimate,” “expect,” "goals," “hope,” “intend,” “may,” "opportunity," “plan,” “predict,” “project,” “target,” “potential,” “would,” "vision," “can,” “could,” “should,” “continue,” and other words and terms of similar meaning to help identify forward-looking statements, although not all forward-looking statements contain these identifying words. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including risks and uncertainties related to: changes in applicable laws or regulations; the possibility that we may be adversely affected by other economic, business, and/or competitive factors, including the COVID-19 pandemic; risks inherent in pharmaceutical research and development, such as: adverse results in our drug discovery, preclinical and clinical development activities, the risk that the results of pre-clinical studies may not be replicated in clinical studies, the risk that we may not be able to enroll sufficient patients in our clinical trials on a timely basis, and the risk that any of our clinical trials may not commence, continue or be completed on time, or at all; decisions made by, and feedback received from, the U.S. FDA (“FDA”) on our regulatory submissions and other feedback from FDA and other regulatory authorities, investigational review boards at clinical trial sites and other review bodies with respect to STAR-0215 and any other future development candidates; our ability to manufacture sufficient quantities of drug substance and drug product for STAR-0215 and any other future product candidates on a cost-effective and timely basis; our ability to develop biomarker and other assays, along with the testing protocols therefore; our ability to obtain, maintain and enforce intellectual property rights for STAR-0215 and any other future product candidates; our potential dependence on collaboration partners; competition with respect to STAR-0215 or any of our other future product candidates; the risk that survey results and market research may not be accurate predictors of the commercial landscape for HAE and the anticipated position and attributes of STAR-0215 in HAE based on its pre-clinical profile, pharmacokinetic modeling and other data; our ability to manage our cash usage and the possibility of unexpected cash expenditures; our ability to obtain necessary financing to conduct our planned activities and to manage unplanned cash requirements; the risks and uncertainties related to our ability to recognize the benefits of any additional acquisitions, licenses or similar transactions; and general economic and market conditions; as well as the risks and uncertainties discussed in the “Risk Factors” section of our Annual Report on Form 10-K for the period ended December 31, 2021, subsequent Quarterly Reports on Form 10-Q, and in other filings that we may make with the Securities and Exchange Commission. These forward-looking statements should not be relied upon as representing our view as of any date subsequent to the date of this presentation, and we expressly disclaim any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

This presentation contains estimates and other statistical data made by independent parties and by us relating to market size and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such data and estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

Investment Highlights

Astria (Nasdaq: ATXS) is developing differentiated therapeutics for patients with rare and niche allergic and immunological diseases

Our lead program, **STAR-0215**, is a monoclonal antibody inhibitor of plasma kallikrein for the preventative treatment of Hereditary Angioedema (HAE)

- Our goal is to provide the most patient-friendly preventative treatment for HAE with dosing once every 3 months or longer
- HAE market is large and growing, expected to reach $4.5B by 2027[1,2]

STAR-0215 Phase 1a preliminary results expected by year-end 2022, which, if favorable, would provide support for the differentiated profile of STAR-0215 as a potential best-in-class treatment for HAE

Evaluating opportunities to expand our pipeline in allergic and immunological diseases

Cash, cash equivalents and short-term investments of $102.5M[3] with expected cash runway through 2023 based on current operating plan

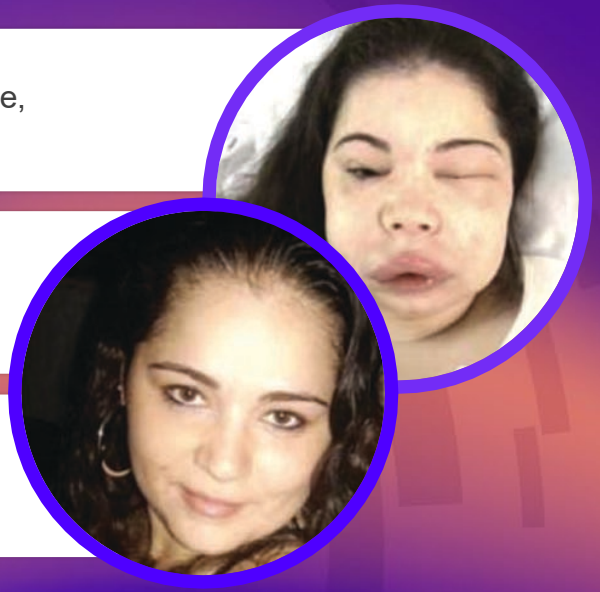
1. Analyst consensus forecasts compiled by Clarivate's Cortellis, Astria company research and analysis
2. Company-reported sales (Takeda, CSL Behring, Pharming, BioCryst)
3. As 6/30/2022

Hereditary Angioedema: A Rare, Disfiguring, and Potentially Life-Threatening Disease

Rare genetic disorder charactered by severe, unpredictable, sometimes **life-threatening** swelling[1]

Affects **<8,000 in the U.S. and <15,000 in the EU,**[2] average age of onset is 11 years old[3]

Standard of care has evolved to both **on-demand** and **preventative treatments**



1. Zuraw BL. N Engl J Med. 2008;359:1027-36.
2. Lumry WR. Front Med. 2018: doi:10.3389/fmed.2018.00022.
3. Bork K, et al. Am J Med. 2006;119:267-274.
4. Images obtained by haeimages.com

STAR-0215: Our Lead Asset

OUR LEAD ASSET

STAR-0215
potential to be most patient-friendly preventative treatment option for HAE

OUR APPROACH

Developing **STAR-0215** to be a long-acting monoclonal antibody inhibitor of plasma kallikrein dosed once every 3 months or longer

OUR NEAR-TERM VALUE DRIVERS

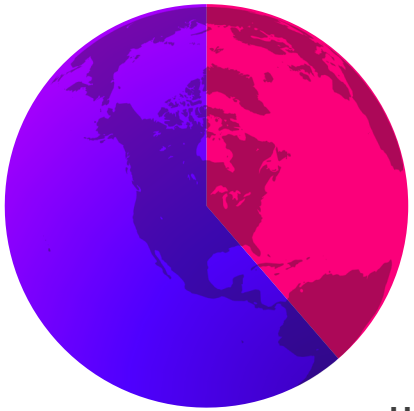
Preliminary results from Phase 1a trial anticipated by year-end 2022 which, if favorable, would provide support for STAR-0215 as a potential best-in-class treatment for HAE

Global HAE Treatment Market is Substantial and Growing

The HAE market is expected to double by 2027[1,2], driven by:

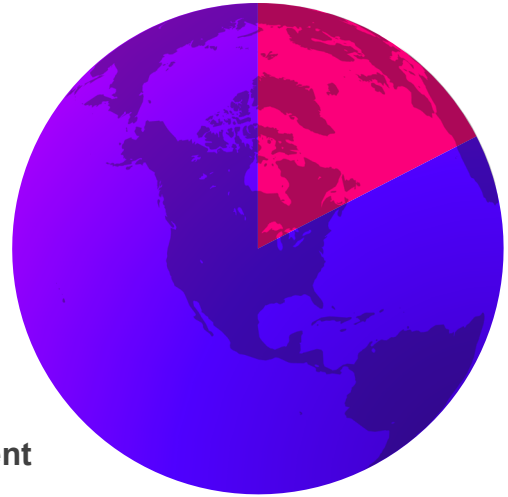
- Patients being diagnosed earlier[3]
- More patients taking preventative treatments[4]
- Geographic expansion for currently available therapies[5]

2021 HAE Market[1]



$2.3B

2027 Estimate HAE Market[1,2]



$4.5B

HAE Treatment

- Preventative
- On-Demand

1. Company-reported sales (Takeda, CSL Behring, Pharming, BioCryst)
2. Analyst consensus forecasts compiled by Clarivate's Cortellis, Astria company research and analysis.
3. Zanichelli A. Clin Transl Allergy. 2018: doi: 10.1186/s13601-018-0229-4
4. Astria company research and analysis
5. Company-reported expectations (Takeda, CSL Behring, BioCryst)

Approved Preventative HAE Treatments in the U.S.

Need for Effective Preventative Therapy with Lower Treatment Burden

Product	Mechanism of Action	Administration	Mean Attack Reduction[1]	% of Attack- Free Patients
CINRYZE	Plasma derived C1-INH	2x/week 	52%	40% (16 weeks)[2]
HAEGARDA	Plasma derived C1-INH	2x/week 	88%	18% (12 weeks)[3]
TAKHZYRO *(lanadelumab)*	Plasma kallikrein inhibitor	1-2x/month 	73-87%	31-44% (26 weeks)[4]
ORLADEYO *(berotralstat)*	Plasma kallikrein inhibitor	1x/day 	30-44%	2-8% (24 weeks)[5]

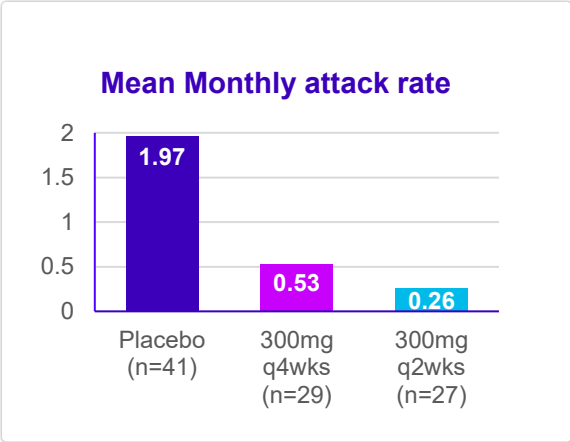
- Plasma kallikrein inhibition is the market leading validated mechanism of action
  - Established PK-PD-efficacy relationship for inhibiting plasma kallikrein and preventing HAE attacks
- Established regulatory and clinical path for HAE
- Opportunity for early clinical PoC with plasma kallikrein inhibition

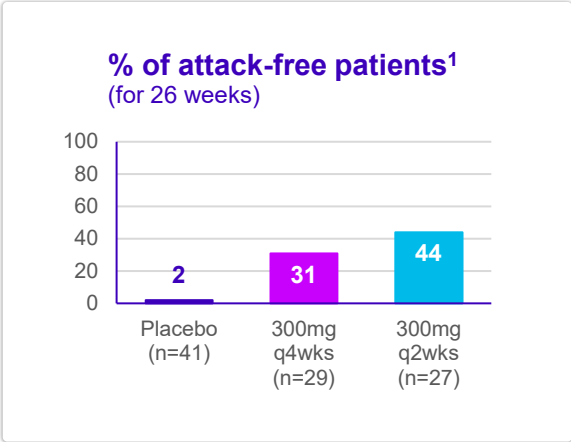
astria THERAPEUTICS

1. Efficacy quoted as reduction in mean attack rate vs placebo; data from respective products' Prescribing Information.
2. CINRYZE Prescribing Information, 2021.
3. HAEGARDA Prescribing Information, 2020.
4. TAKHZYRO Prescribing Information, 2018.
5. Center for Drug Evaluation and Research. NDA/BLA Multidisciplinary Review and Evaluation NDA 214094. Washington DC: CDER (US); 2020.
6. Cortellis, HealthAdvances, EvaluatePharma, and Company research and analysis

Opportunity to Improve HAE Treatment and Reduce Burden on Patients

TAKHZYRO® (lanadelumab-flyo)
is a plasma kallikrein mAb approved for prevention of HAE attacks[1]





Indicated for dosing every 2 weeks; every 4 weeks may be considered in some patients

TAKHZYRO is the current global market leader[1]

- Takeda reported nearly $1B in fiscal year 2021 sales[3]
- Shire acquired Dyax for $5.9B after Phase 1b with lead program TAKHZYRO[4]

56-69% of patients experienced attacks on TAKHZYRO[2]

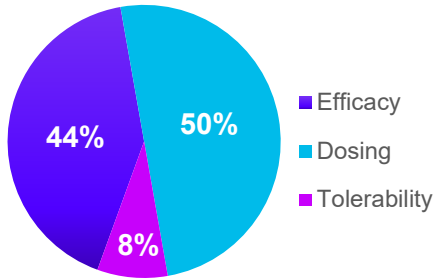
Published unmet need for improved HAE treatments[5, 6]

- Despite preventative treatments, patients continue to have attacks and high rates of anxiety and depression

1. Takeda FY2021 Q4 Earnings Announcement, May 2022.
2. TAKHZYRO Prescribing Information, 2018.
3. Takeda 2021 Fiscal Year Financial Report, May 2022.
4. Shire plc and Dyax Corp. Press Release. 2015, Nov.
5. Banerji A, et al. Ann Allergy Asthma Immunol. 2020; 124: 600-607. doi: 10.1016/j.anai.2020.02.018.
6. Riedl MA., et al. Ann Allergy Asthma Immunol. 2021; 126: 264-272. doi: 10.1016/j.anai.2020.10.009.

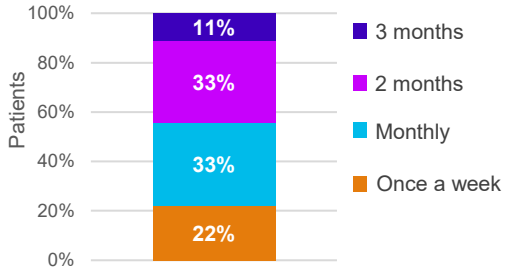
STAR-0215's Target Efficacy and Dosing is Compelling to Interviewed HAE Patients and Treatment Providers

Improvements That Would Compel **Patients** to Switch Therapies



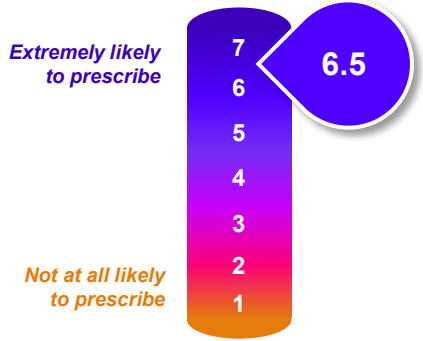
n = 10 patients*

Minimal Improvements in Dose Frequency That Would Compel **Patients** to Switch Therapies



n = 9 patients**

Average **Prescriber** Rating for STAR-0215's Target Product Profile



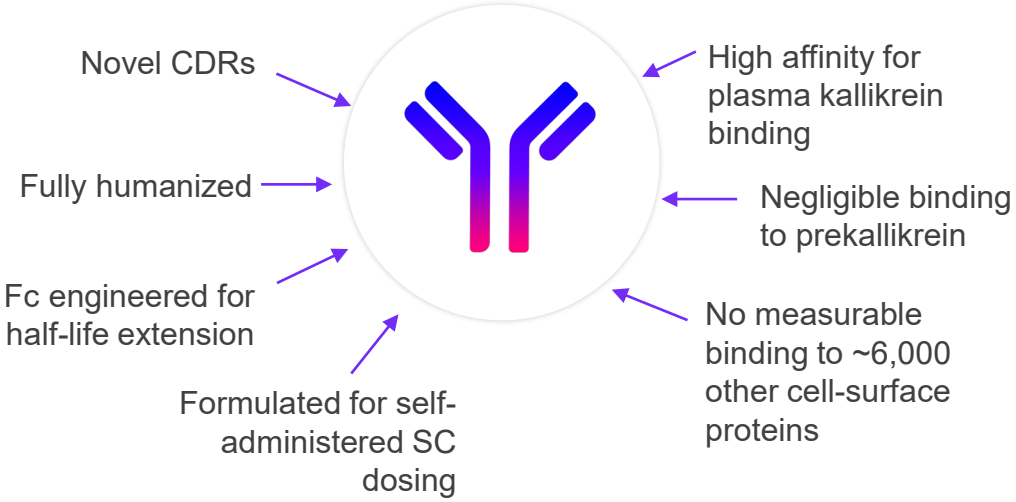
n = 20 prescribers

- On average, patients tried 2-3 preventative treatments, most often switching for more convenient administration
- All interviewed patients would be compelled to switch from their current therapy if a new therapy offered similar efficacy with less frequent dosing
- Most prescribers (n=13) would discuss a product with STAR-0215's target profile with all HAE patients, including those using on-demand therapy only

*Two of ten patients were unable to choose between efficacy and dosing; their answers were counted in both categories
**One of ten patients was unable to specify an answer
Company qualitative market research with 10 HAE patients and 20 HAE Treatment providers. Patient Interview data presented at the 2021 NORD Virtual Summit

STAR-0215
Potential for Best-in-Class Profile in HAE

Preclinical Profile of STAR-0215



Encouraging preclinical results
Demonstrated high potency for plasma kallikrein and long plasma half-life

Differentiated profile
Potential benefits include long duration without breakthrough attacks and infrequent SC dosing- once every 3 months or longer

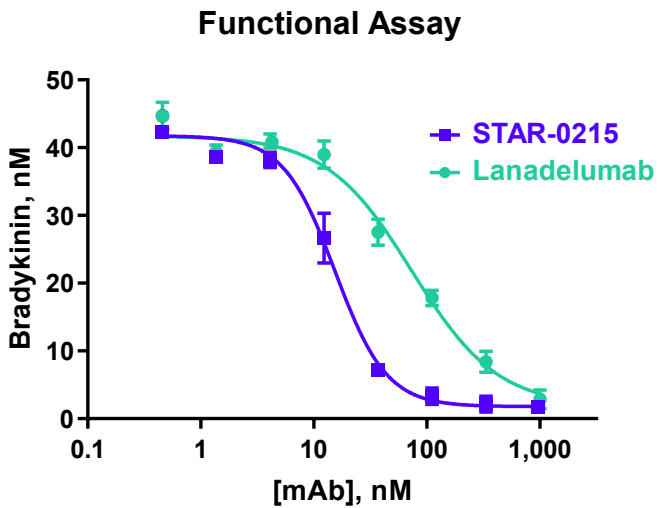
Trusted modality
To provide patients with improved quality of life

Astria wholly owns a patent directed to STAR-0215. The patent expires in 2042, excluding any potential patent term extension[1]

1. This is an international (PCT) patent application that needs to be nationalized and then granted in such nationalized countries, including the US, covered by PCT to have this patent term.

STAR-0215
Shows High Potency Inhibition of Plasma Kallikrein

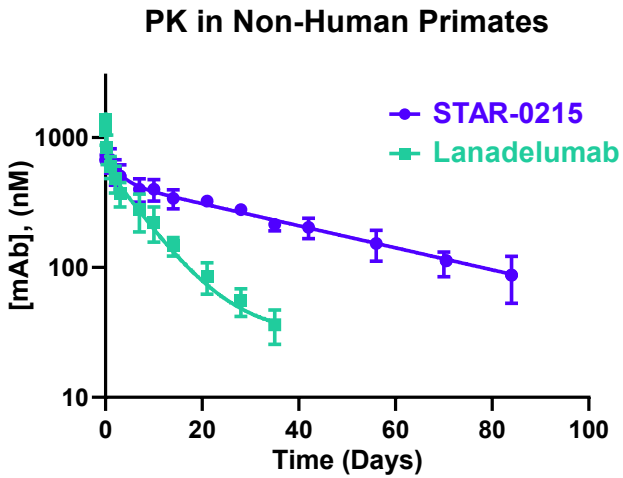
- **STAR-0215** binding affinity for plasma kallikrein is ~10-fold greater than lanadelumab
- **STAR-0215** binds a different site on plasma kallikrein than lanadelumab
- **STAR-0215** is more potent at inhibiting enzymatic activity than lanadelumab



STAR-0215 was more potent than lanadelumab in inhibiting bradykinin production in an *in vitro* assay

Potency determined by bradykinin ELISA to detect cleavage of high molecular weight kininogen (600 nM) by plasma kallikrein (30 nM)
Plasma kallikrein levels 30-110nM estimated in HAE plasma (Kaufman, et al., *Blood*, 1991.)
Data presented at the 2021 ACAAI Scientific Meeting

STAR-0215 Has Shown Substantially Prolonged Plasma Half-Life Compared to Lanadelumab in Non-Human Primates



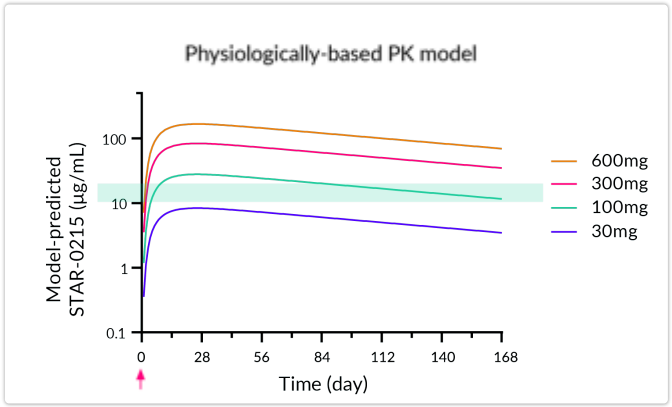
STAR-0215 engineered with YTE half-life extension technology

- Enhanced FcRn binding translated to a more than three-fold increase in plasma half-life with STAR-0215 compared to an antibody without YTE modifications
- Half-life of mAbs with similar half-life extension technology
  - Non-human primates: 20 – 40 days
  - Humans: 70 – 120 days

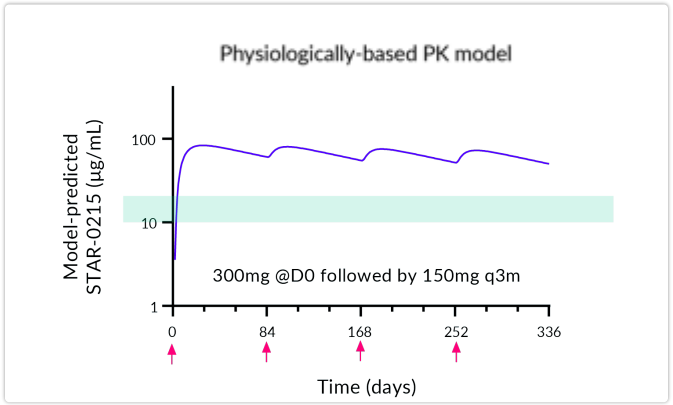
	Lanadelumab	STAR-0215
Mean non-human primate half-life in days (SD)	10.5 (1.6)	33.6 (8.3)

Data from concurrent but independent experiments in cynomolgus monkeys dosed at 5 mg/kg, iv
Lanadelumab data are representative of 3 independent experiments that all showed $t_{1/2}$ ~10 days
Data presented at the 2021 ACAAI Scientific Meeting

Physiologically-Based PK Model Supports a Dosing Frequency of Every 3 Months or Longer



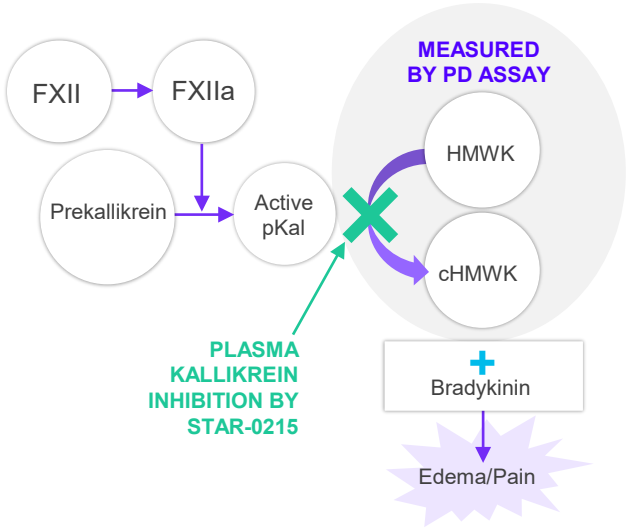
Model suggests target concentration of STAR-0215 required to produce long-term inhibition of plasma kallikrein can be achieved with a single dose above 30mg

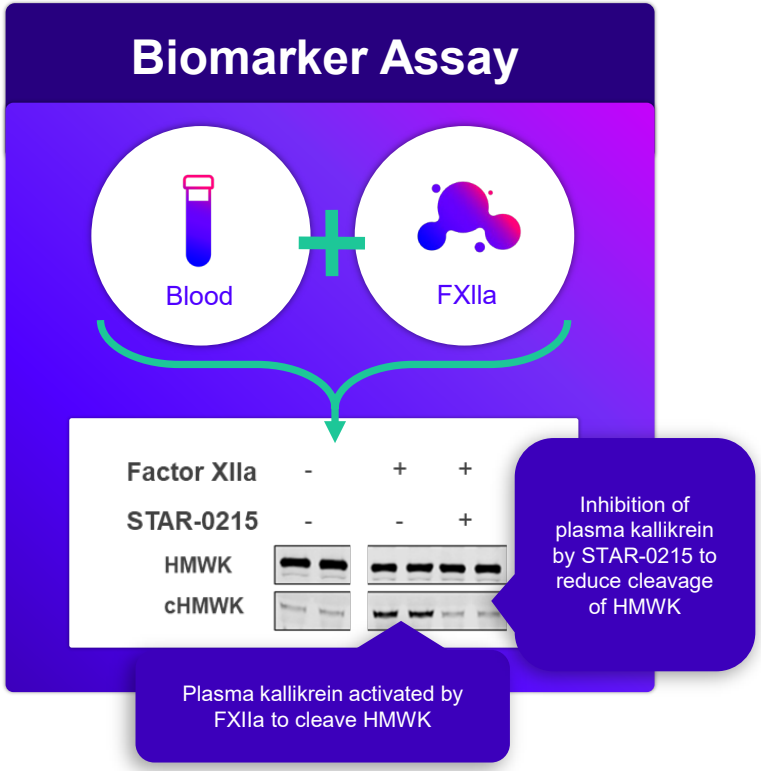


Model suggests target level of STAR-0215 can be achieved with a loading dose of 300mg followed by the maintenance dose of 150mg every 3 months

Target concentration (shown in green) expected to be required to completely inhibit plasma kallikrein is defined as the range of plasma kallikrein levels in patients during HAE attacks

Planned Biomarker Assay to Assess Plasma Kallikrein Activity Following STAR-0215 Dosing





HMWK = high molecular weight kininogen
cHMWK = cleaved high molecular weight kininogen
FXII = Factor XII
FXIIa = activated Factor XII

STAR-0215 Phase 1a Trial Initiated

Anticipate Preliminary Results YE 2022

DESIGN

- At least three single ascending dose cohorts
  - 100 mg, 300 mg, and 600 mg
  - Healthy adult subjects
  - Subcutaneous dosing
- Randomized, double-blind, placebo-controlled
  - 6 to 2 randomization
- Single U.S. center study
- Observation period through multiple half-lives

EXPECTED RESULTS

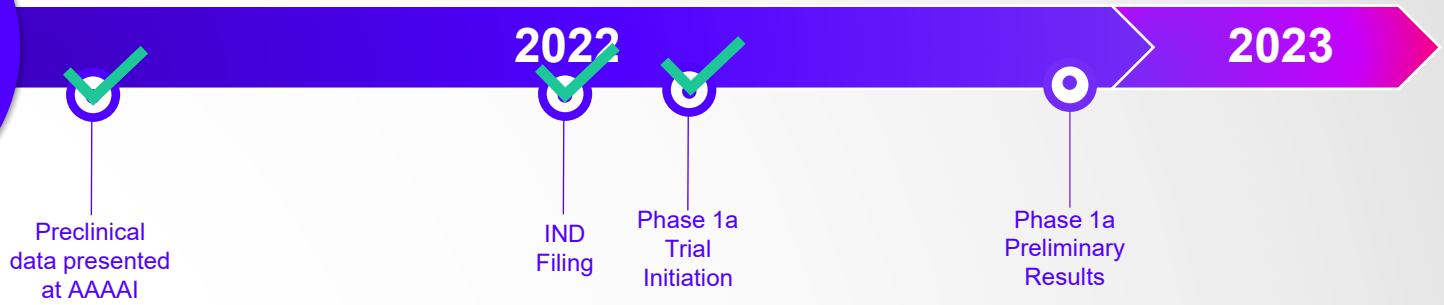
- Safety and tolerability
- Pharmacokinetics- antibody half-life
- Pharmacodynamics- inhibition of plasma kallikrein

Goals for Results:

- Assess safety and tolerability
- Establish prolonged half-life
- Demonstrate inhibition of plasma kallikrein activity

Upcoming Potential Milestones for STAR-0215

Advancing **STAR-0215** with a clinically validated mechanism



Additional milestones:

- Plan to present at additional scientific conferences
- Plan to initiate Phase 1b/2 trial in participants with HAE in 2023

Astria (Nasdaq ATXS) Well-Positioned for the Future

STRONG FINANCIAL FOUNDATION

- As of 6/30/2022, the Company had cash, cash equivalents and short-term investments of $102.5M with expected cash runway through 2023 based on current operating plan

CAPITALIZATION STRUCTURE

Company Capitalization Structure as of June 30, 2022	As Converted Common Shares
Common stock outstanding	13,016,955
Common stock underlying outstanding Series X Preferred Stock	5,242,501
Adjusted Common stock outstanding [1]	18,259,456

1. Assumes 100% conversion of all outstanding Series X Preferred Stock.


astria
THERAPEUTICS